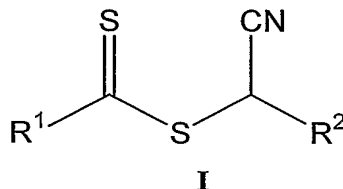


**CLAIMS**

1. A polymerization process comprising
  - a. combining at least one chain transfer agent of formula **I**,



at least one monomer susceptible to free radical polymerization, and a free radical initiator, and;

- b. generating free radicals;

wherein

$\text{R}^1$  is selected from alkyl, substituted alkyl, heteroaryl, substituted heteroaryl, alkylaryl, substituted alkylaryl, aryl, substituted aryl, alkoxy, aryloxy, thioalkyl, thioaryl, substituted thioalkyl, substituted thioaryl, secondary amino and tertiary amino;

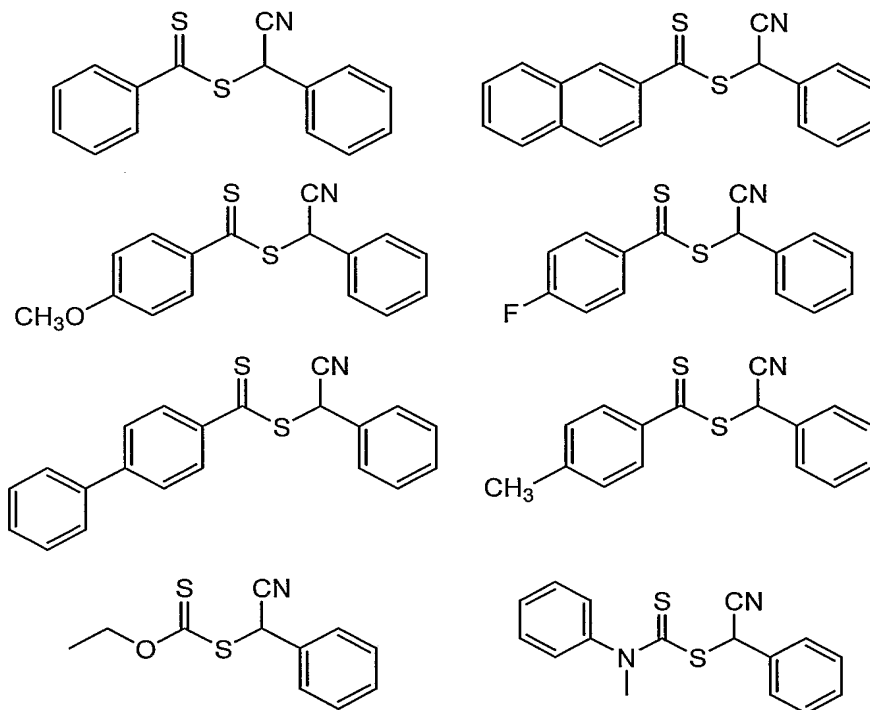
$\text{R}^2$  is selected from alkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, and  $\text{COOR}^3$  and

$\text{R}^3$  is alkyl.

whereby a polymer, comprising repeating units derived from said at least one monomer, is formed.

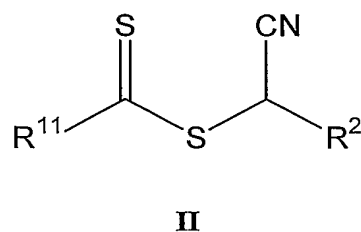
2. A polymerization process according to claim 1 wherein  $\text{R}^1$  is selected from aryl, substituted aryl, alkoxy, secondary amino and tertiary amino.
3. A polymerization process according to claim 1, wherein  $\text{R}^1$  is aryl.
4. A polymerization process according to claim 1, wherein  $\text{R}^1$  is substituted aryl.
5. A polymerization process according to claim 1, wherein  $\text{R}^1$  is alkoxy.
6. A polymerization process according to claim 1, wherein  $\text{R}^1$  is secondary or tertiary amino.
7. A polymerization process according to claim 1, wherein  $\text{R}^2$  is aryl.
8. A polymerization process according to claim 1, wherein  $\text{R}^2$  is phenyl.

9. A polymerization process according to claim 1, selected from the group consisting of



10. A polymerization process according to claim 1, wherein said at least one monomer is selected from the group consisting of vinyl monomers, acrylic and methacrylic acid, acrylate and methacrylate esters, styrene, fumarates, maleic anhydride, maleimides, and mixtures thereof.

11. A compound of formula **II**



wherein

R<sup>11</sup> is selected from alkyl, substituted alkyl, heteroaryl, substituted heteroaryl, alkylaryl, substituted alkylaryl, aryl, substituted aryl, aryloxy, thioalkyl, thioaryl, substituted thioalkyl, and substituted thioaryl; and

$R^2$  is selected from alkyl, aryl, substituted aryl, heteroaryl, substituted heteroaryl, and  $\text{COOR}^3$  and

$R^3$  is alkyl.

12. A compound according to claim 11, wherein  $R^1$  is selected from aryl and substituted aryl.
13. A compound according to claim 11, wherein  $R^1$  is aryl.
14. A compound according to claim 11, wherein  $R^1$  is substituted aryl.
15. A compound according to claim 11, wherein  $R^1$  is phenyl
16. A compound according to claim 11, wherein  $R^2$  is aryl.
17. A compound according to claim 11, wherein  $R^2$  is phenyl.
18. A compound according to claim 11, selected from the group consisting of

